

Global Tropics Hazards And Benefits Outlook

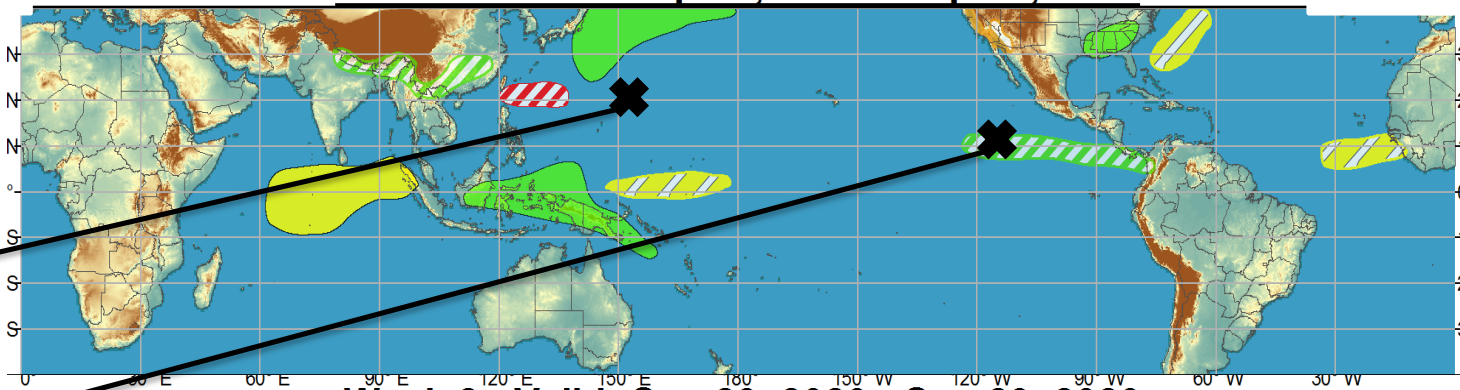
9/29/2020

Kyle MacRitchie

Outline

1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

Week 1 - Valid: Sep 23, 2020 - Sep 29, 2020

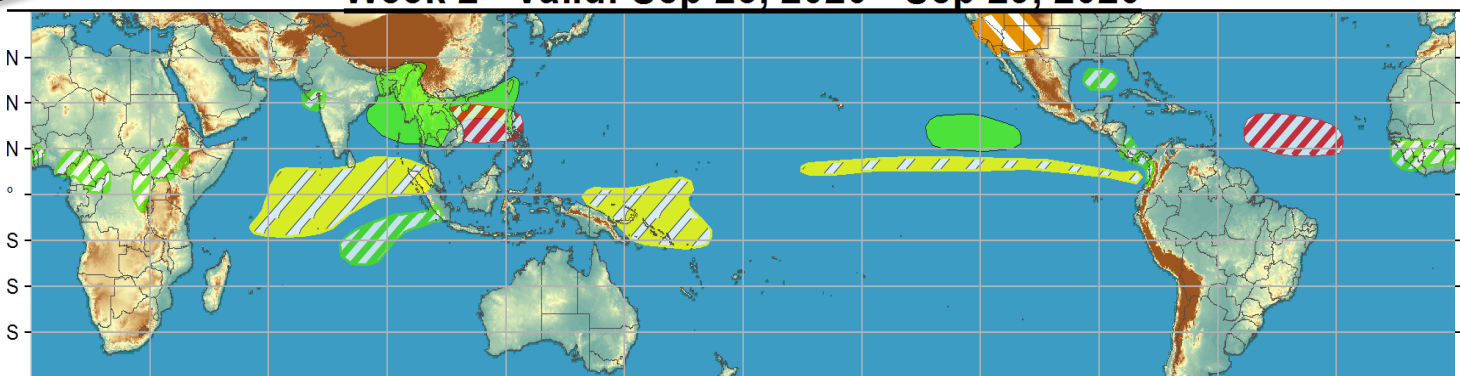


Outlook Review

TS Kujira

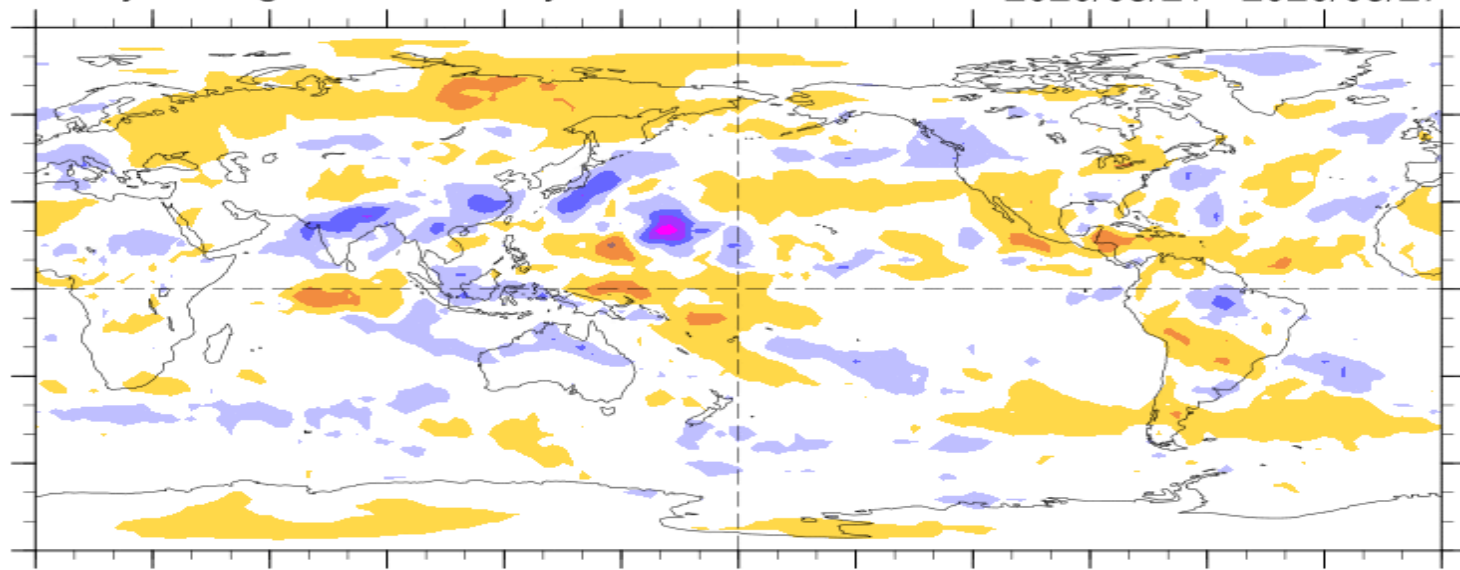
TD18

Week 2 - Valid: Sep 23, 2020 - Sep 29, 2020



7-Day Average OLR Anomaly

2020/09/21 - 2020/09/27



Cool shading
More clouds/rain

Warm shading
Less clouds/rain

Synopsis of Climate Modes

ENSO: (September 10, 2020 Update)

next update on 8th of Oct.!

- ENSO Alert System Status: [La Niña Advisory](#)
- La Niña conditions are present and are likely to continue through the Northern Hemisphere winter (~75% chance).

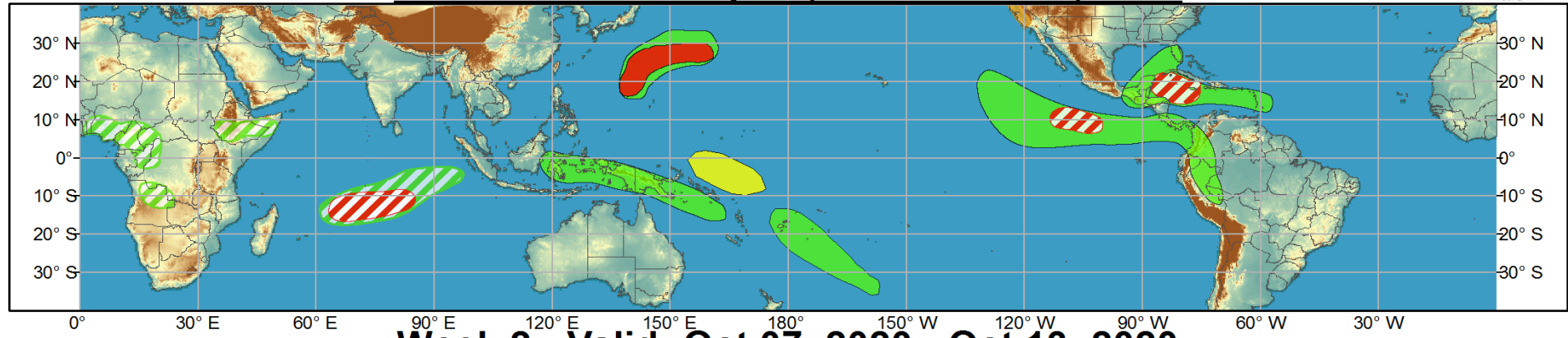
MJO and other subseasonal tropical variability:

- The MJO is weak, but has had a noticeable impact on the global pattern.
- An atmospheric, convectively coupled Kelvin wave is headed across the Pacific.
- La Nina appears to be developing atmospheric connections.
- Is the negative IOD on the way in?

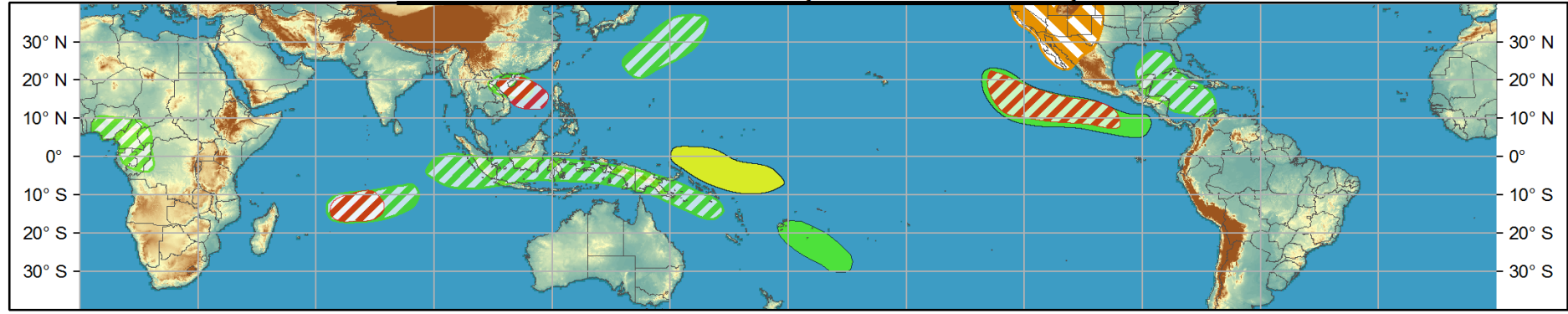


Global Tropics Hazards and Benefits Outlook - Climate Prediction Center

Week 1 - Valid: Sep 30, 2020 - Oct 06, 2020



Week 2 - Valid: Oct 07, 2020 - Oct 13, 2020



Confidence
High Moderate

- Tropical Cyclone Formation** Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Above-average rainfall** Weekly total rainfall in the upper third of the historical range.
- Below-average rainfall** Weekly total rainfall in the lower third of the historical range.
- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
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Produced: 09/29/2020

Forecaster: MacRitchie

Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 0, 0 to 40N. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.



IR Satellite & 200-hpa Velocity Potential Anomalies

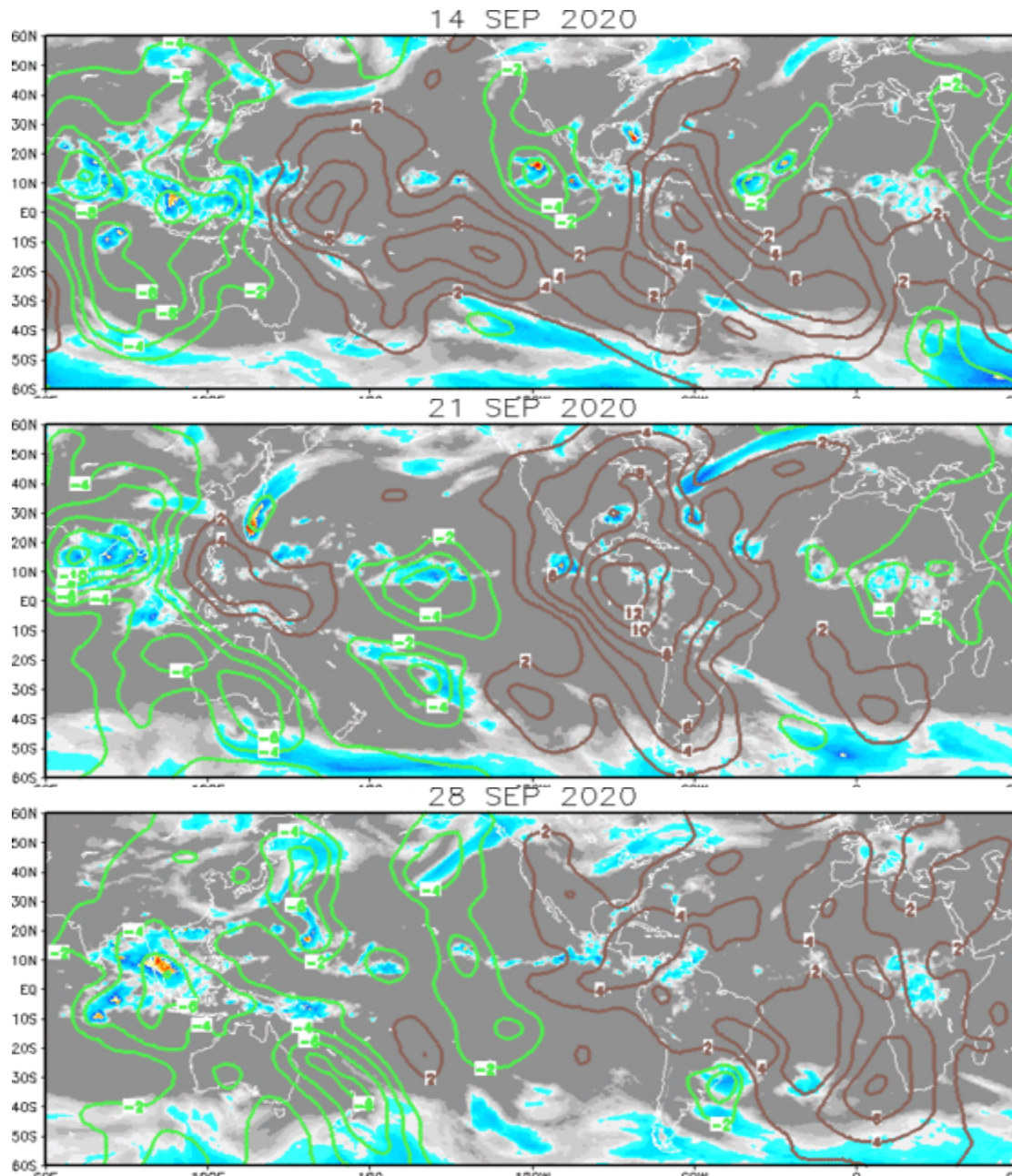
Green: Enhanced Divergence

Brown: Enhanced Convergence

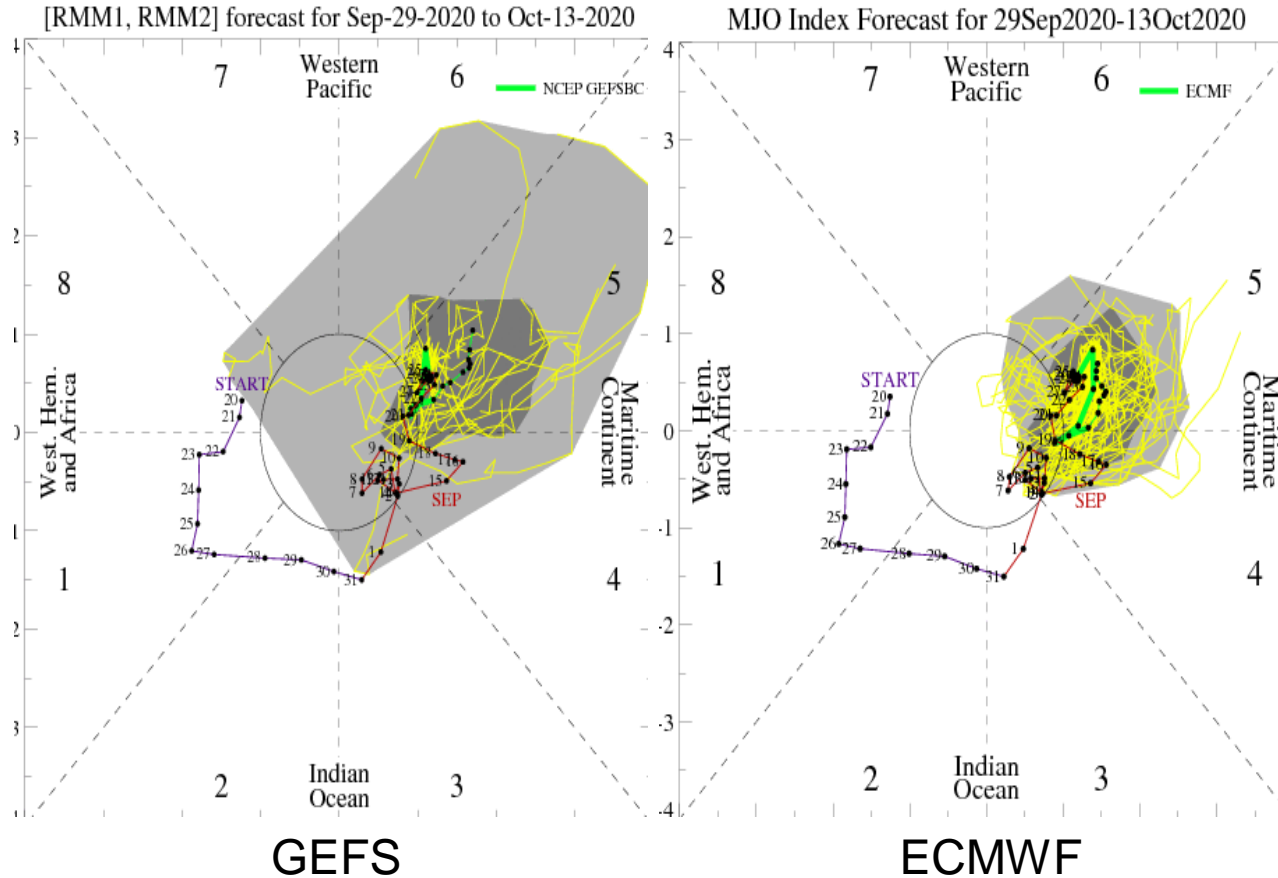
Noisy Wave-2 pattern,
combination of the MJO and TC
activity.

Enhanced convection over
eastern Indian Ocean connected
with MJO.

Weak Wave-1 pattern associated
with MJO.

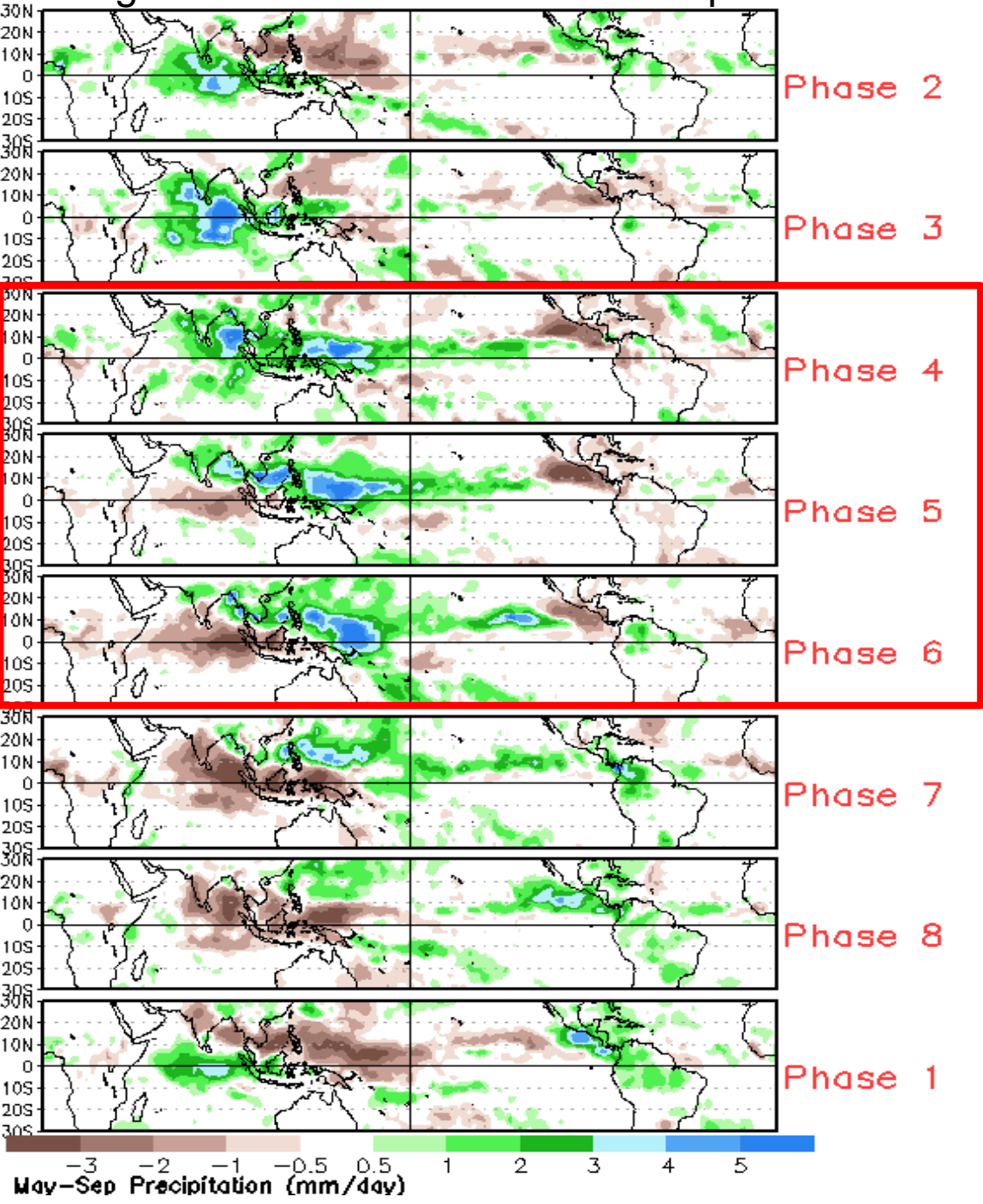


MJO Observation/Forecast



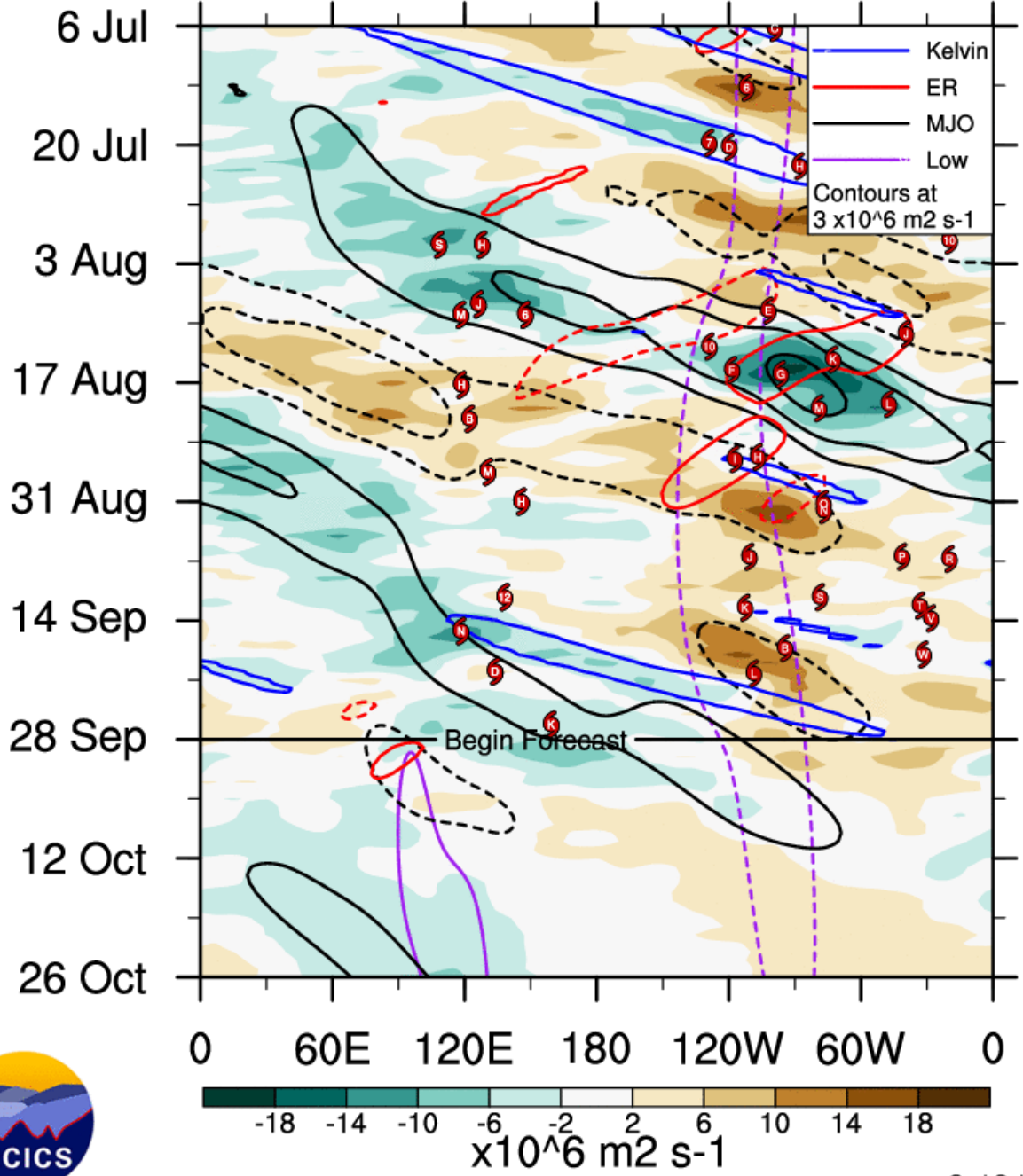
GEFS and ECMWF are confused about how to propagate the MJO, possibly because of Kelvin and equatorial Rossby wave interference, as well as prolonged TC activity.

Average Conditions when the MJO is present



CAVEAT: These panels are representative of robust MJO events.

CHI200 with CFS forecasts 15S - 15N

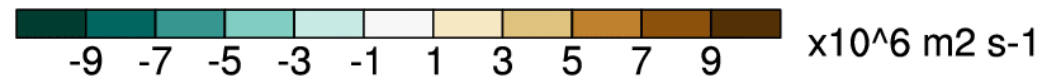
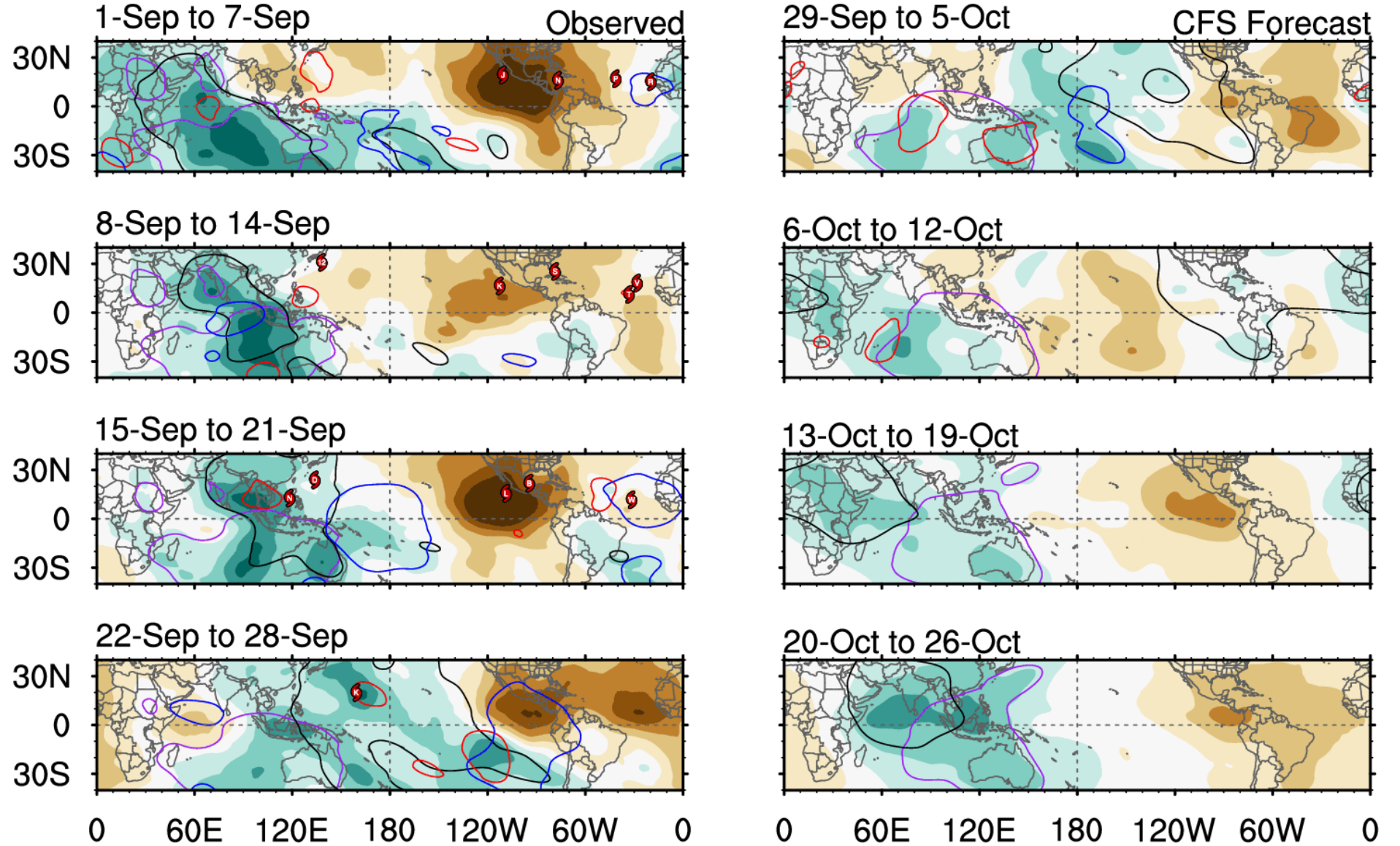


MJO is weak, but forecast to propagate across Pacific.

Kelvin wave activity over the East Pacific may have helped TC formation.

Low frequency contours depict ENSO cold conditions. They also hint at negative IOD forming.





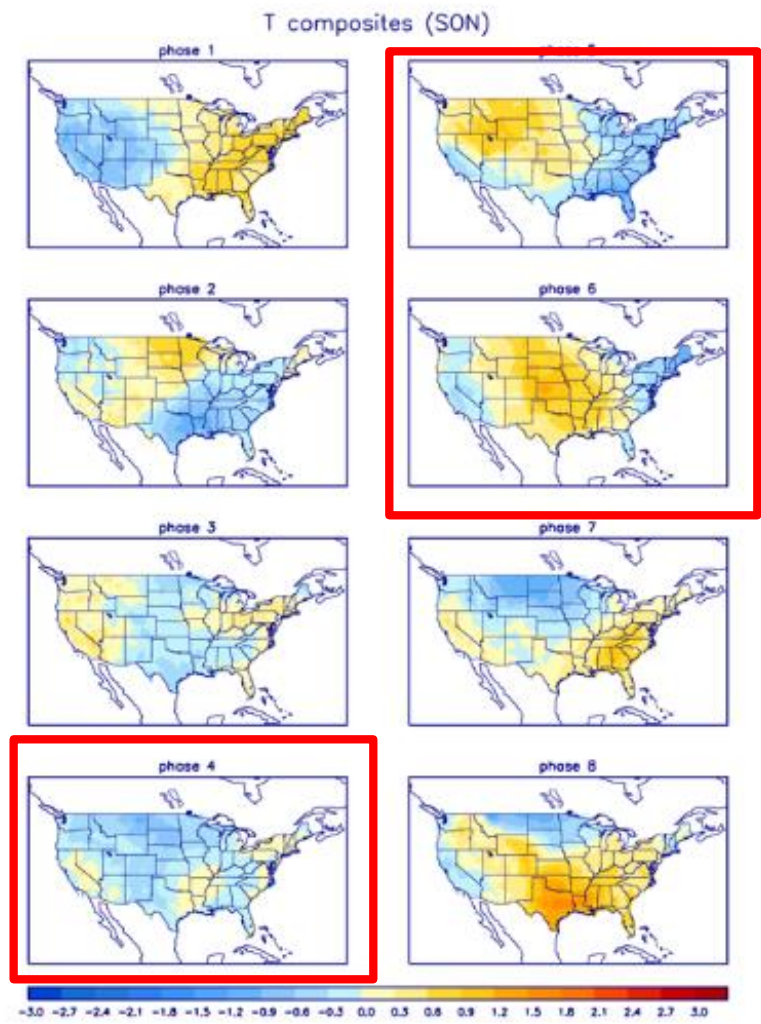
7-day CHI200 with CFS forecasts

- MJO
- Kelvin x2
- Low
- ER

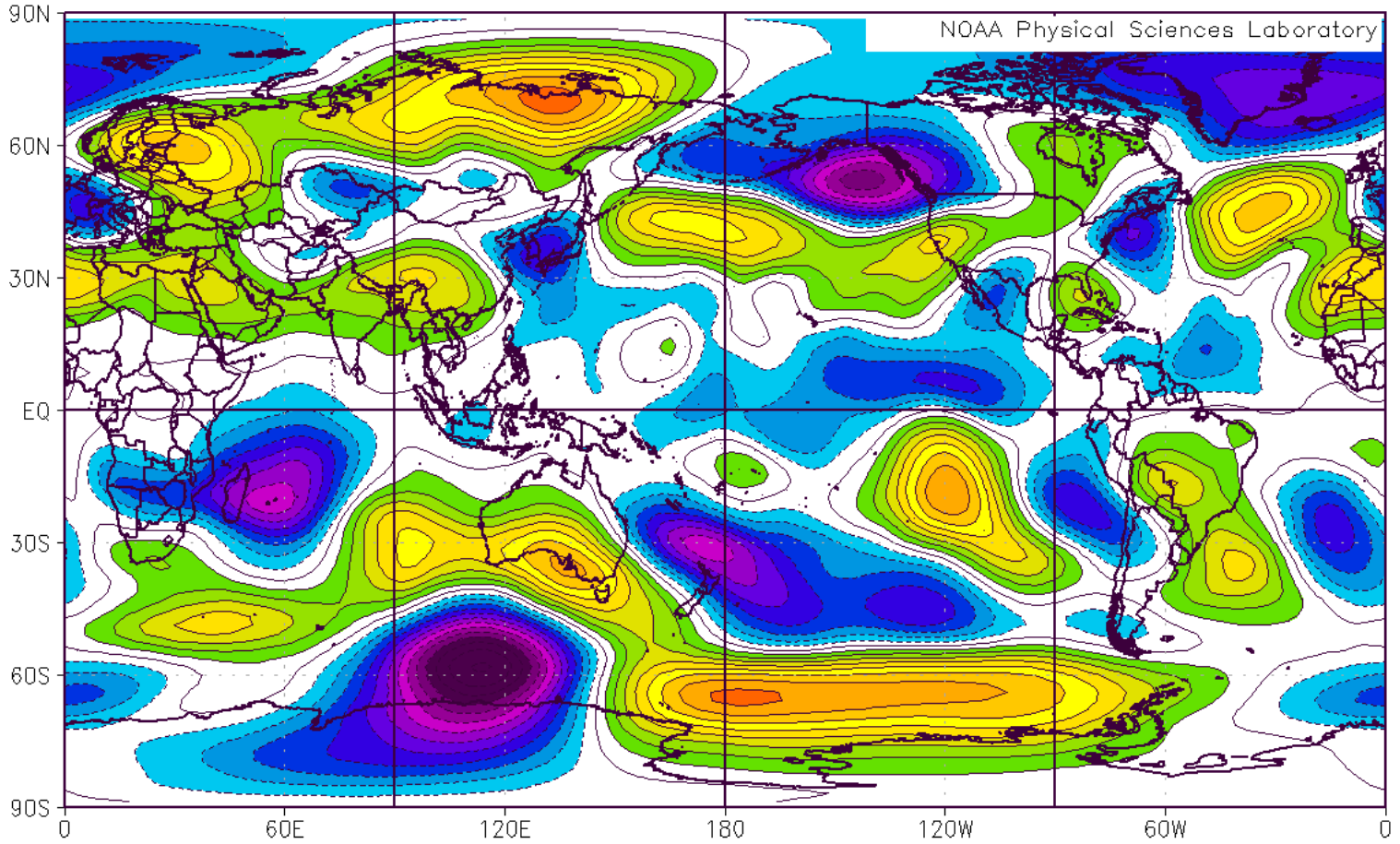
Contours at $-2, -6 \times 10^6 \text{ m}^2 \text{ s}^{-1}$

Average MJO conditions for Sep-Oct-Nov.

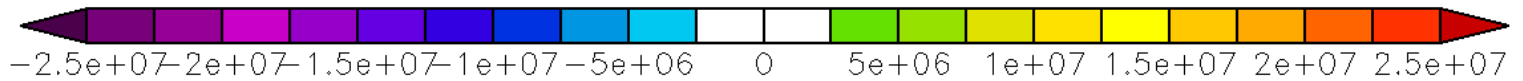
<https://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/Composites/Temperature/>



NCEP/NCAR Reanalysis

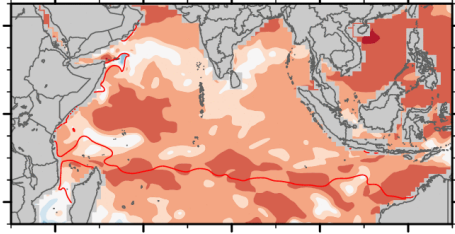
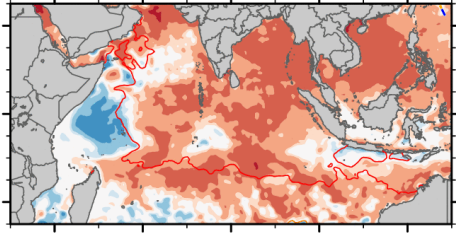


.2582 sigma Streamfunction Composite Anomaly (1981-2010 Climatology)
9/20/20 to 9/27/20



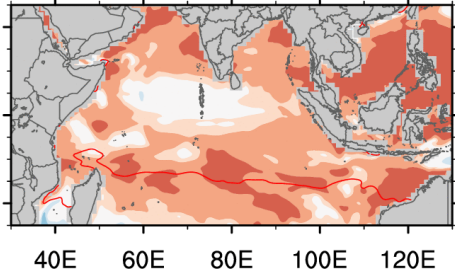
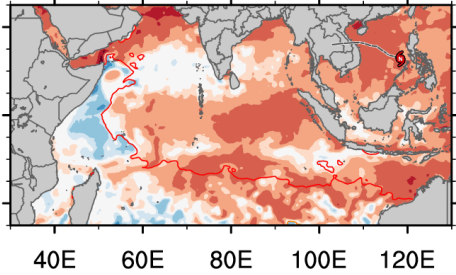
31-Aug to 13-Sep OI SST Observations

29-Sep to 12-Oct CFS Forecast

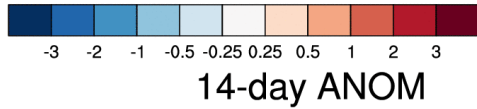
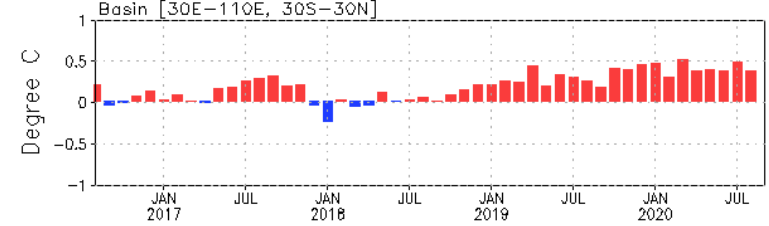
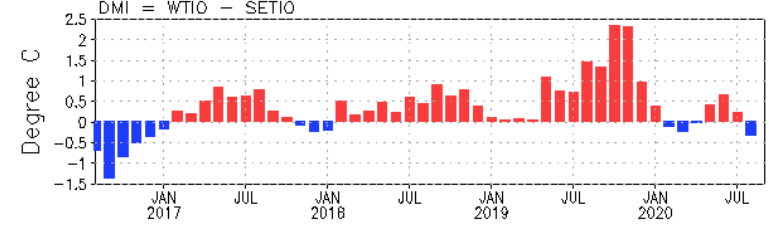
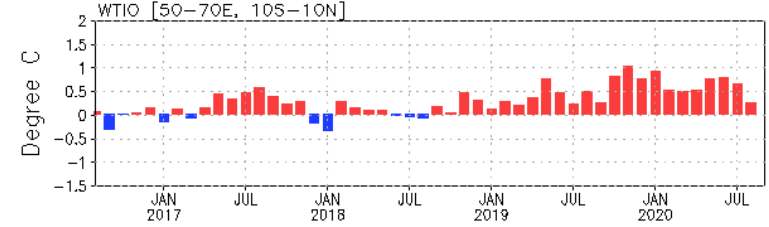
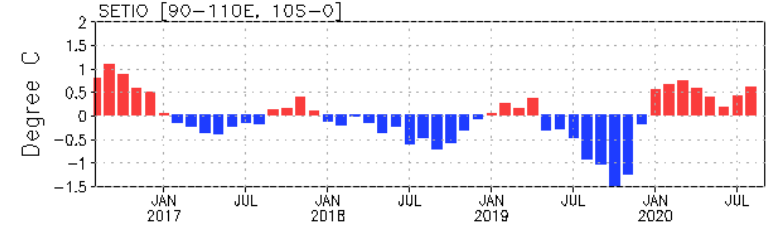


14-Sep to 27-Sep

13-Oct to 26-Oct



Indian Ocean Dipole Mode Indices (OISST, 1981-2010 Climatology)



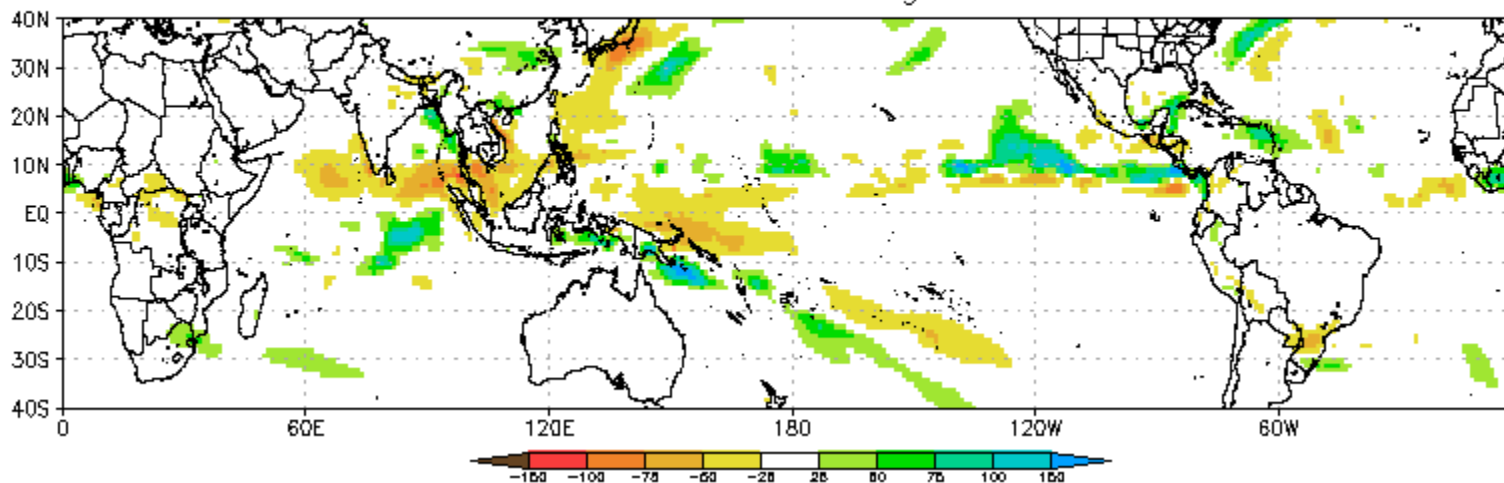
- 26.5°C
- 20°C
- 10°C
- Cat-5
- Cat-4
- Cat-3
- Cat-2
- Cat-1
- TS
- TD

Carl Schreck
carl_schreck@ncsu.edu

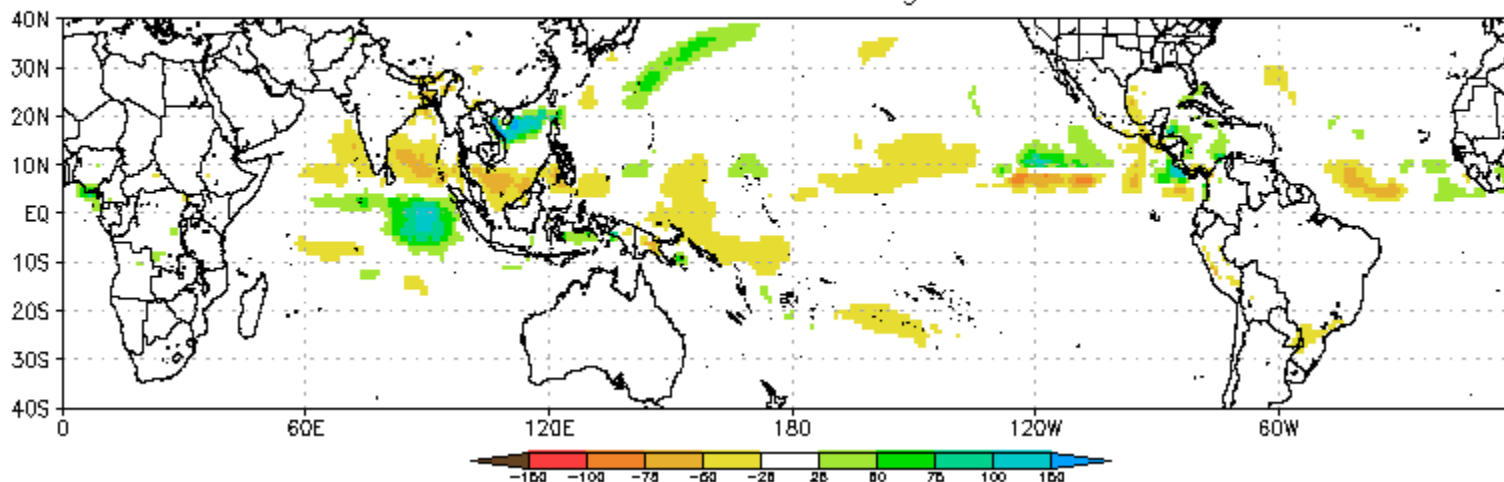
ncics.org/mjo

Tue 2020-09-29 1022 UTC

CFS Precipitation Anomalies (mm) Issued 28Sep2020
Week-1 Forecast Ending 06Oct2020

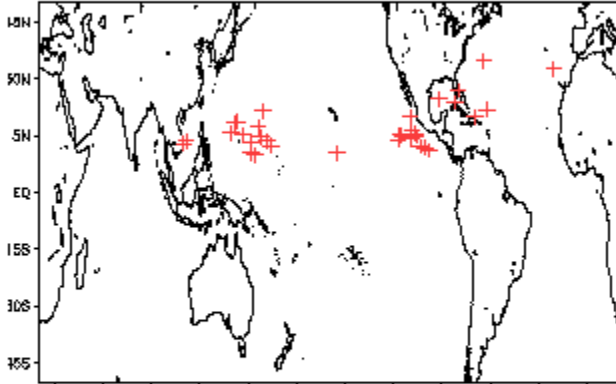


CFS Precipitation Anomalies (mm) Issued 28Sep2020
Week-2 Forecast Ending 13Oct2020

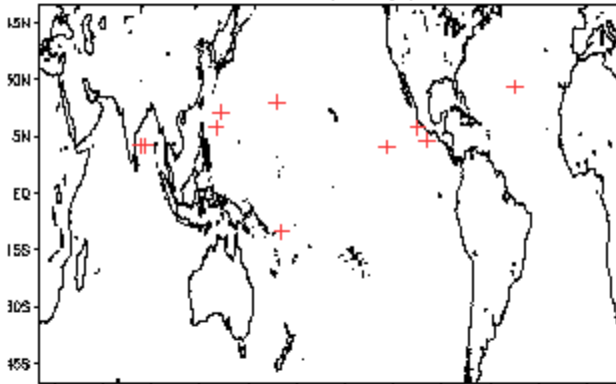


October Tropical Storm Formation by MJO phase

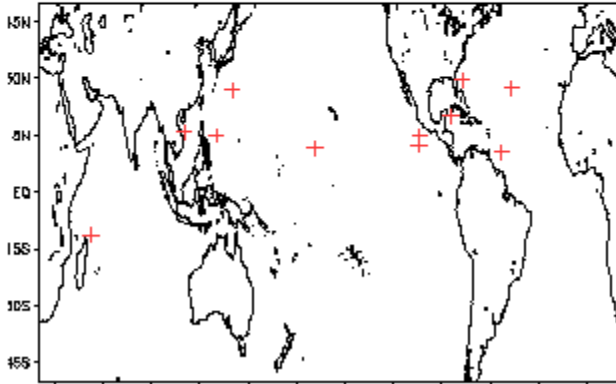
Phase 1 (94 days) 34 storms



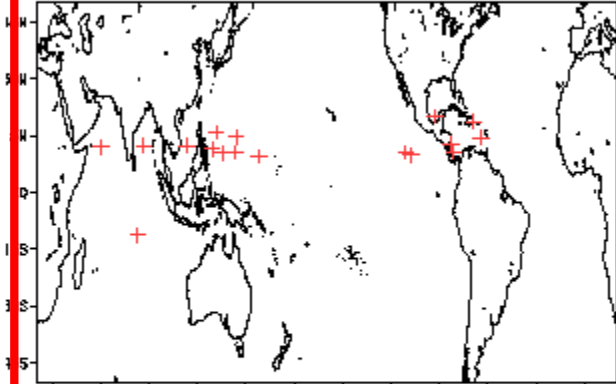
Phase 2 (75 days) 11 storms



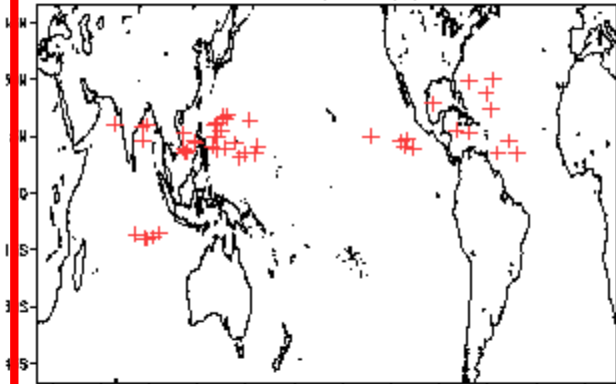
Phase 3 (41 days) 12 storms



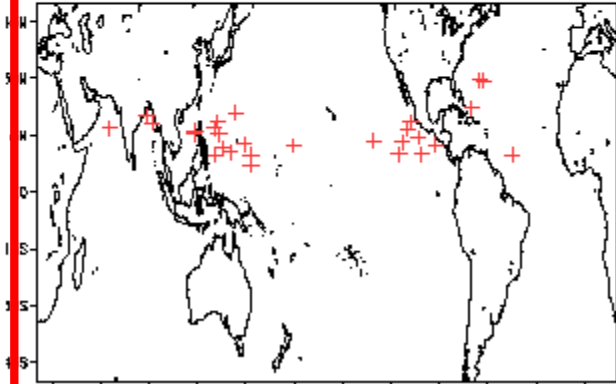
Phase 4 (85 days) 18 storms



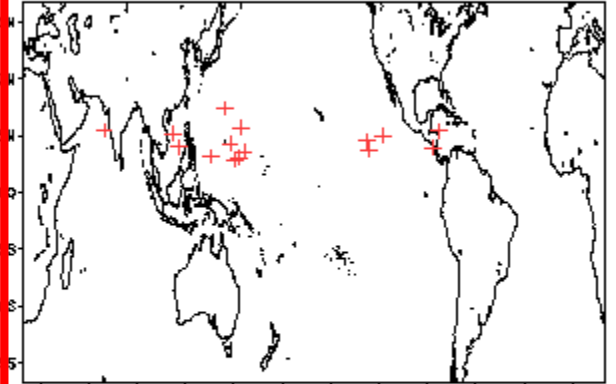
Phase 5 (133 days) 48 storms



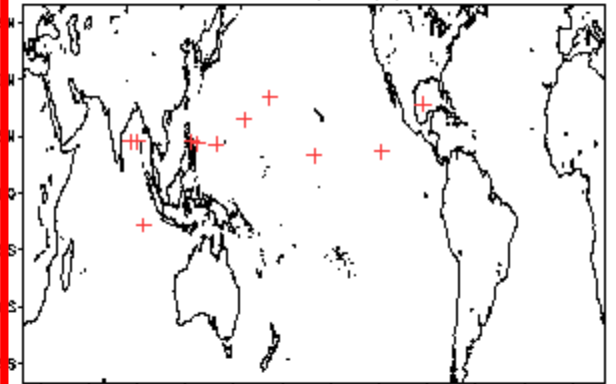
Phase 6 (78 days) 30 storms



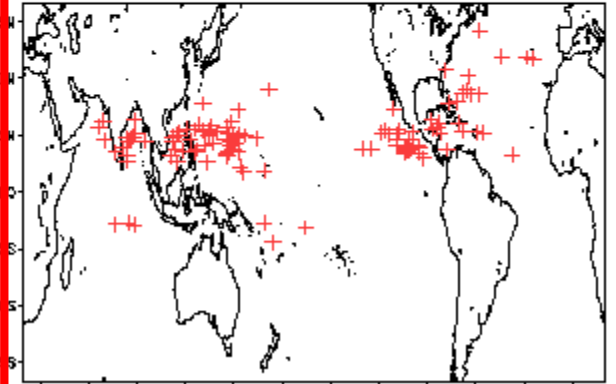
Phase 7 (48 days) 16 storms



Phase 8 (66 days) 12 storms



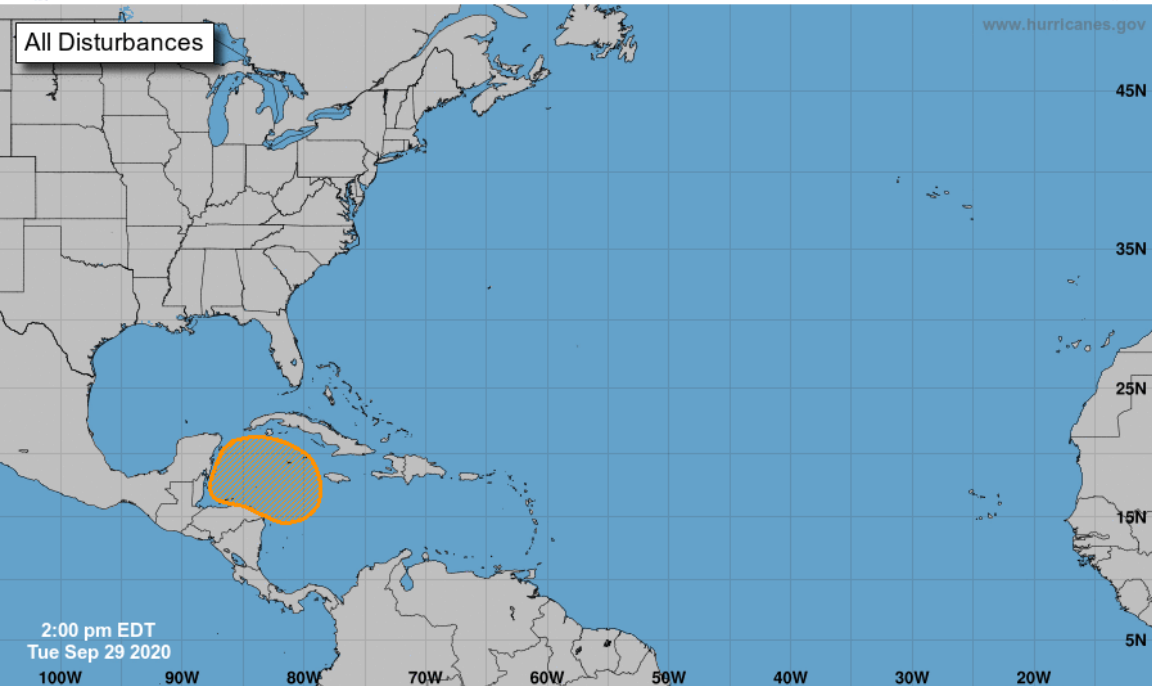
Null (422 days) 119 storms





Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



2:00 pm EDT
Tue Sep 29 2020

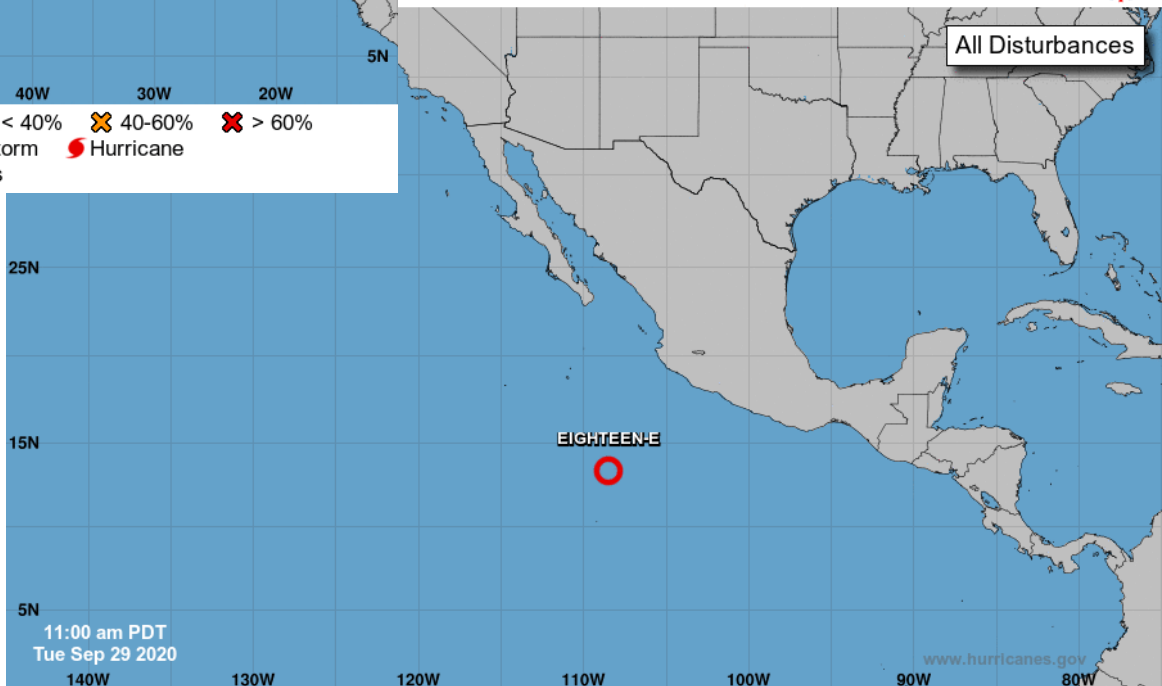
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone or Remnants

Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



11:00 am PDT
Tue Sep 29 2020

Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

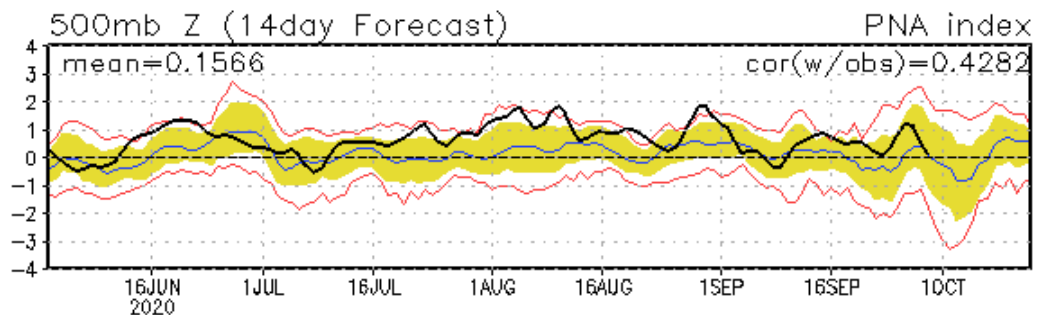
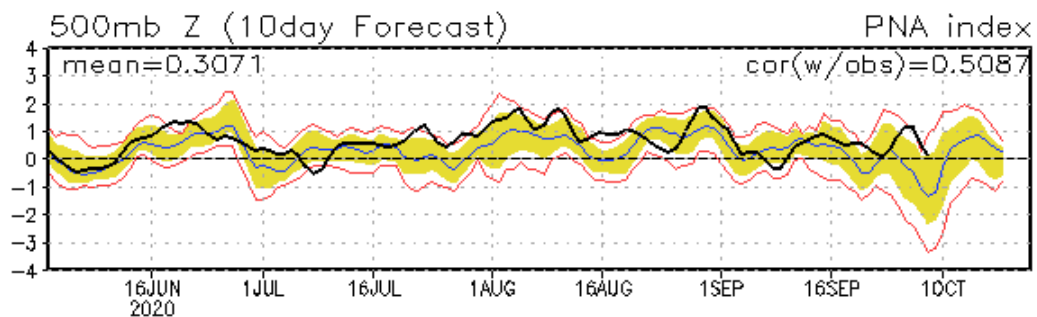
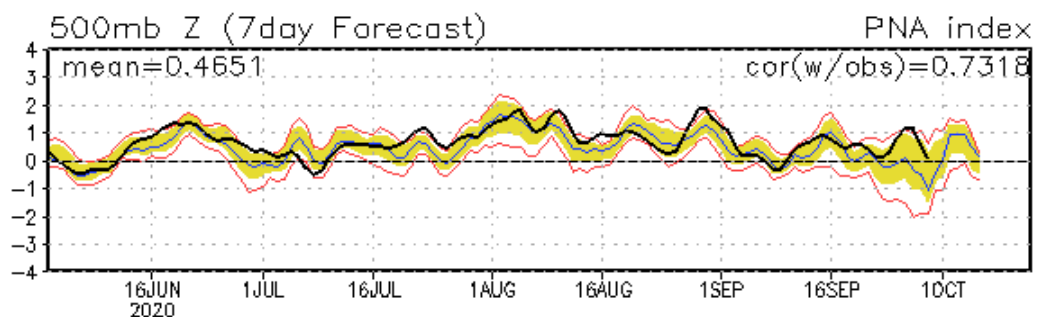
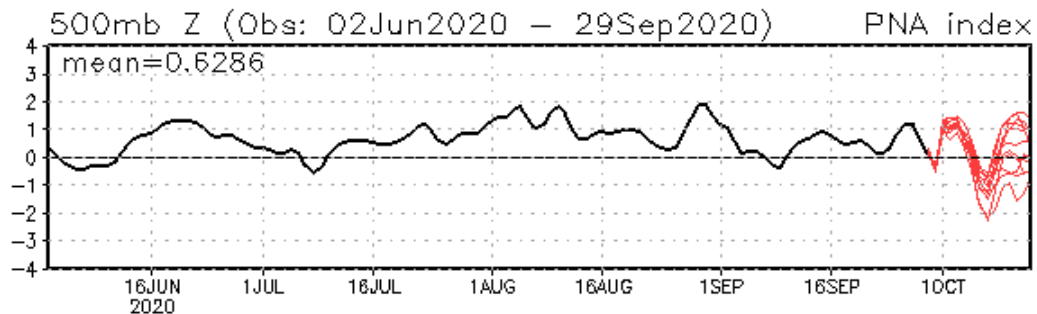
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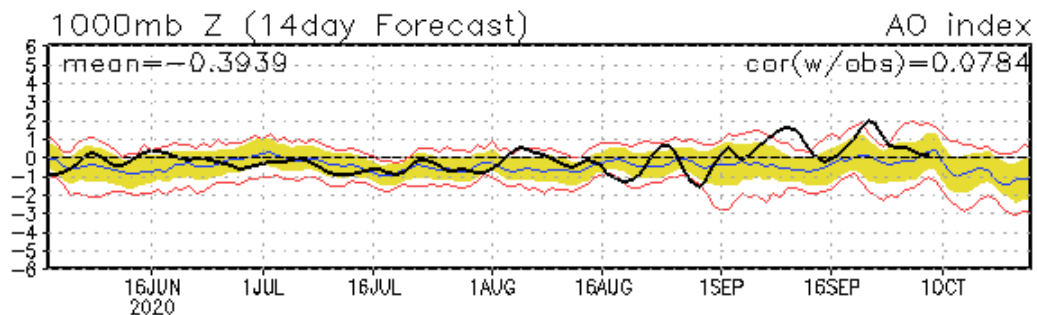
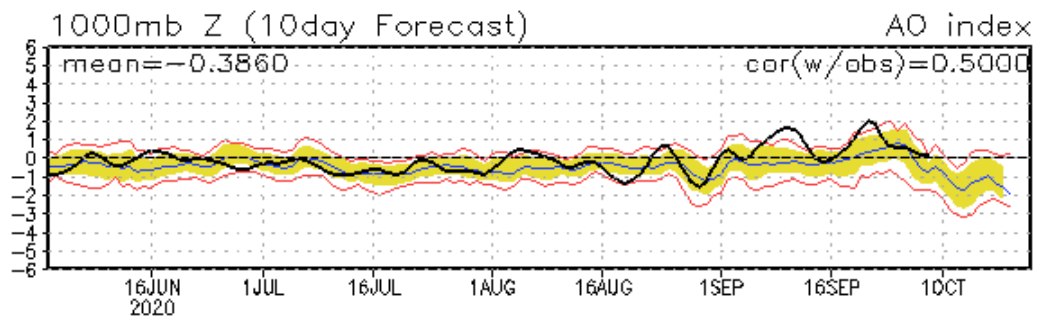
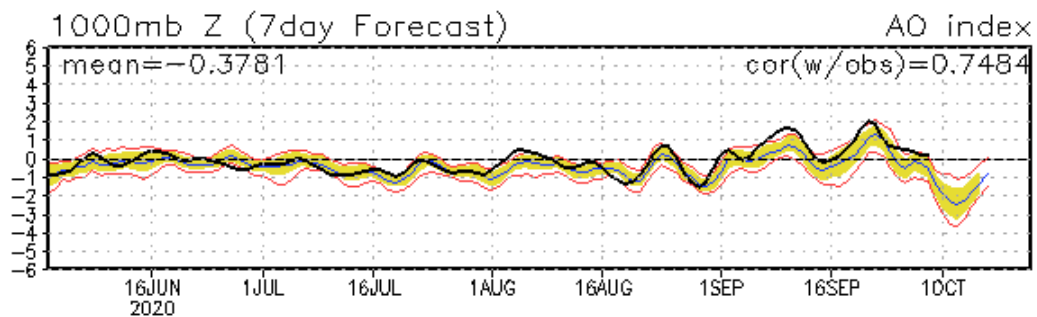
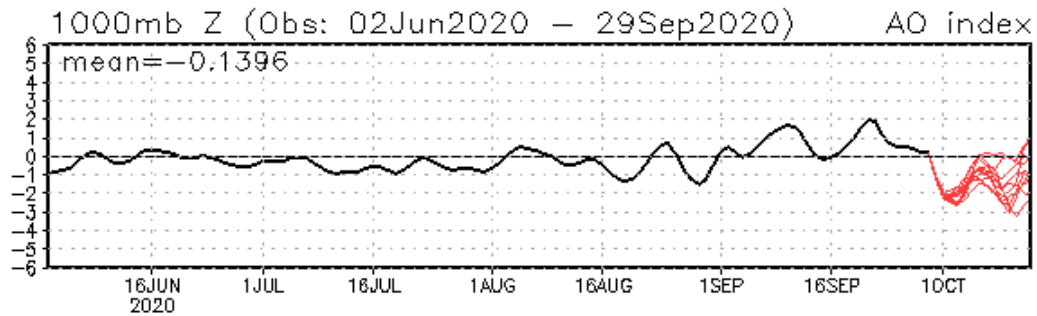
All Disturbances

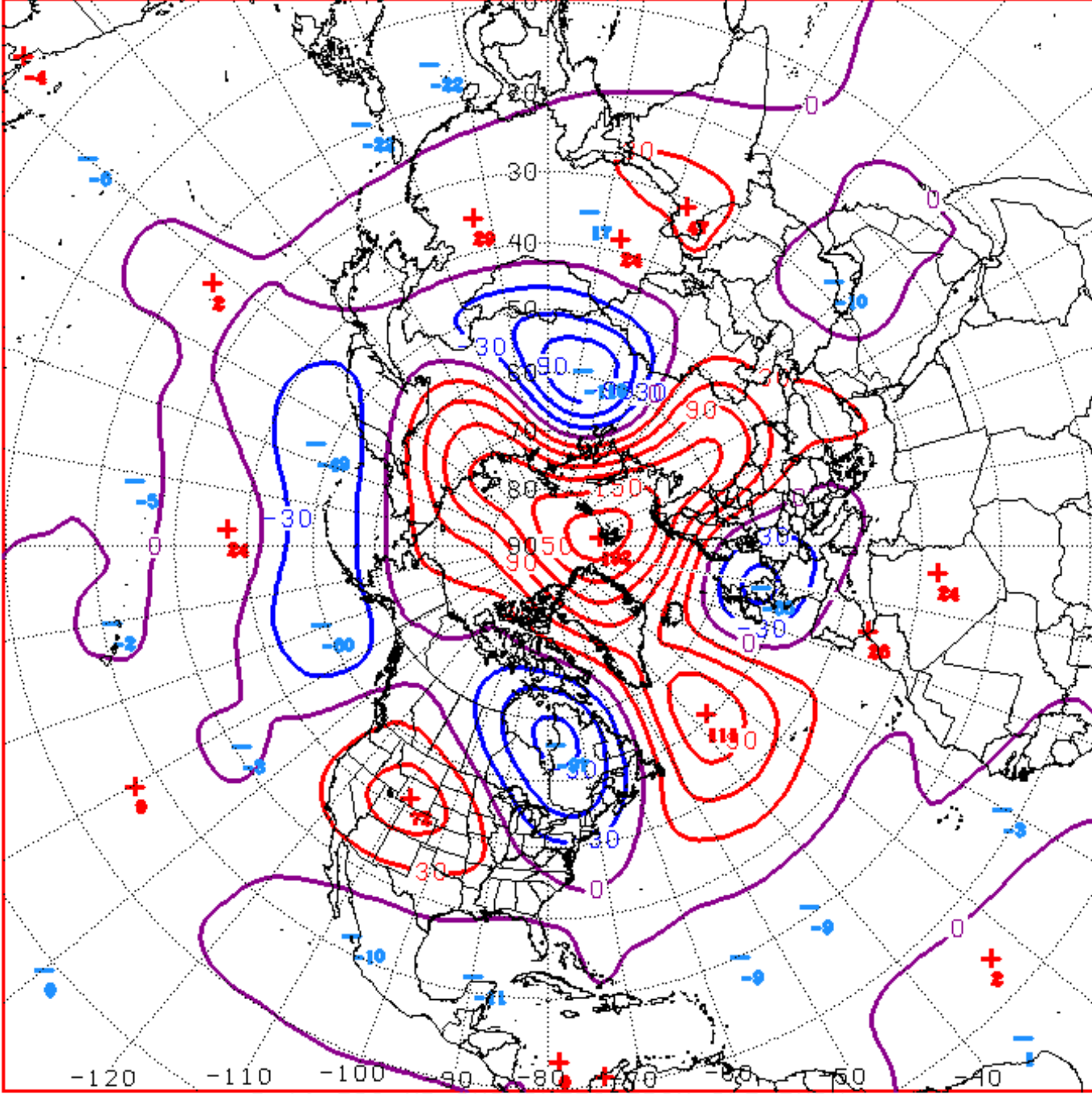
Connections to U.S. Impacts

PNA: Observed & ENSM forecasts



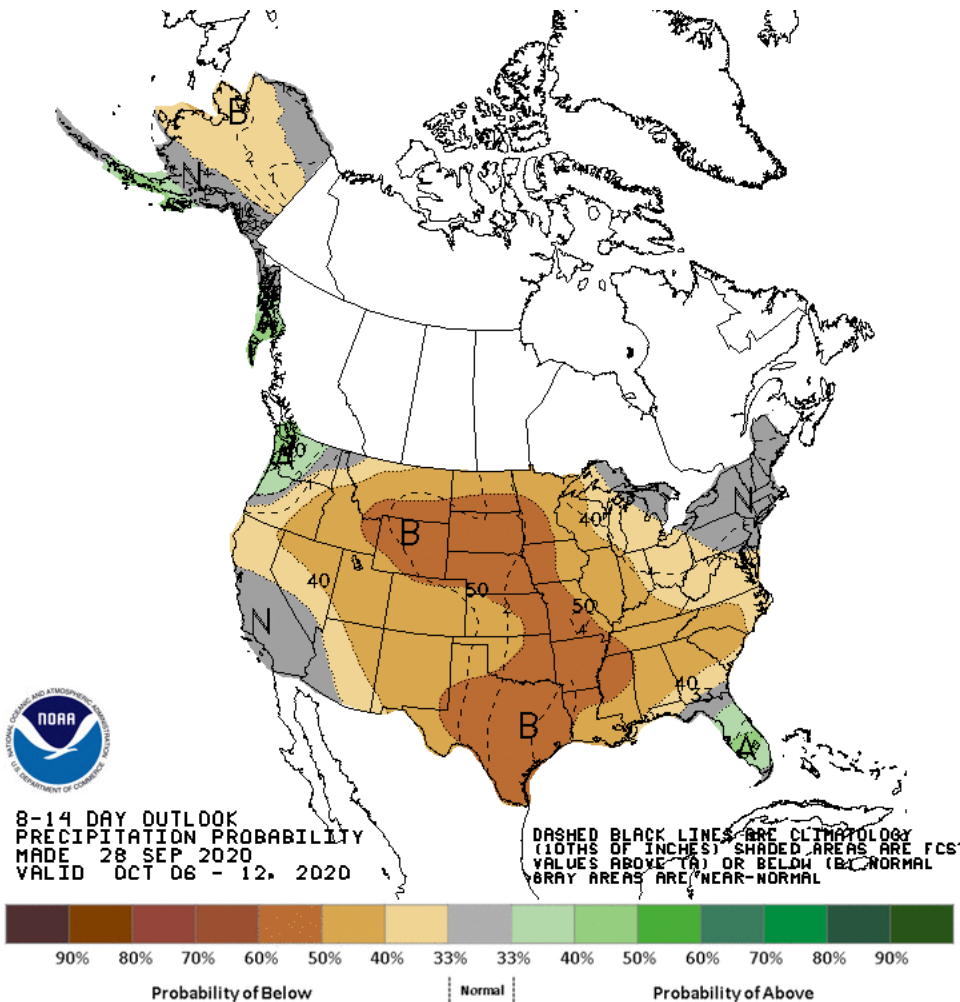
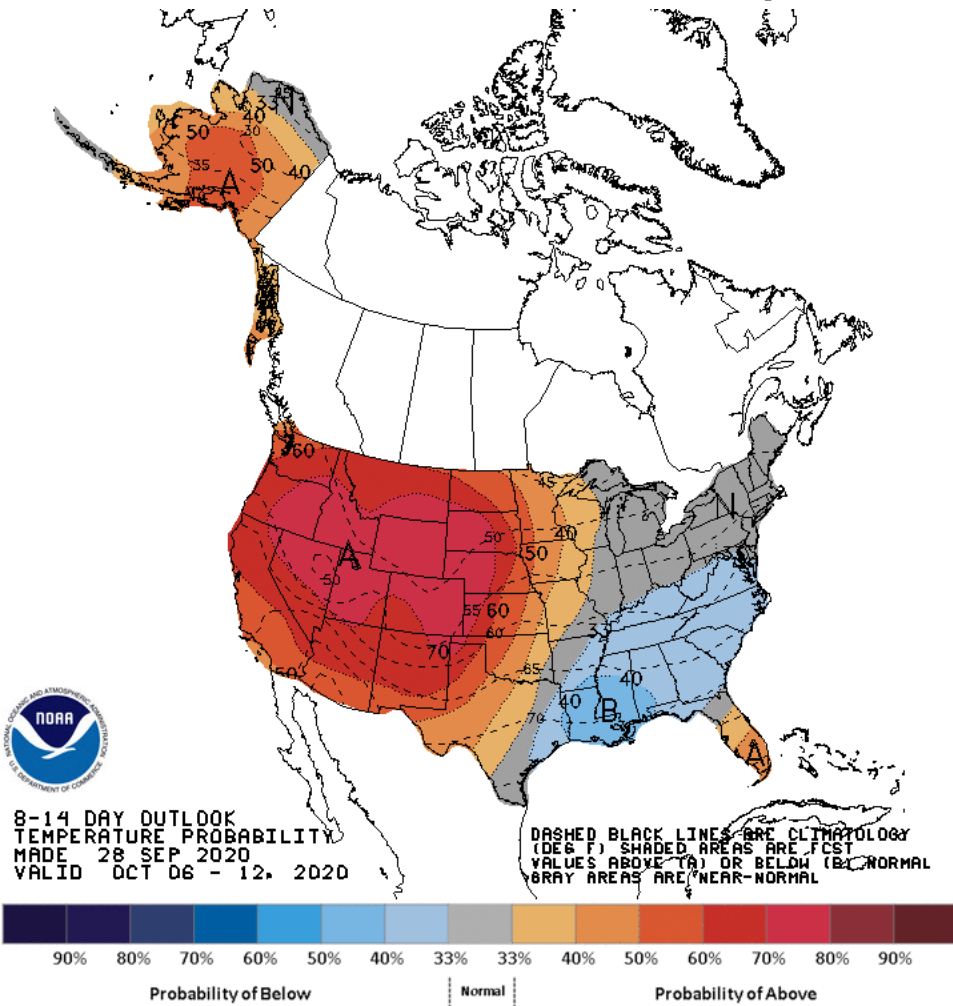
AO: Observed & ENSM forecasts





D+11 500 MB ANOMALIES FROM ALZ ENSM
CPC MAP MADE SEP 29 2020 1454 UTC CNTD OCT 10 2020

Week 2 – Temperature and Precipitation

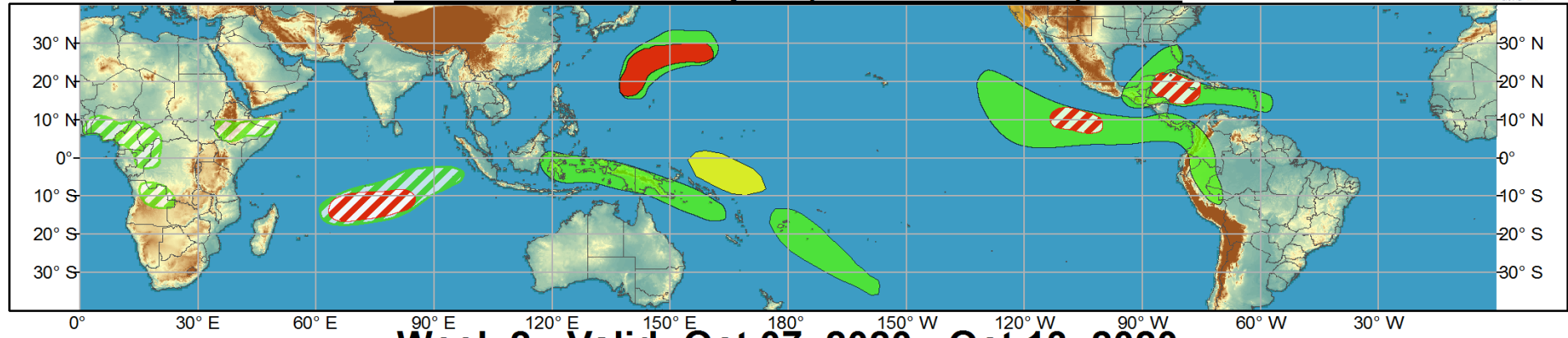


Since we are in an amplified, stable pattern today's outlooks are likely to be similar.

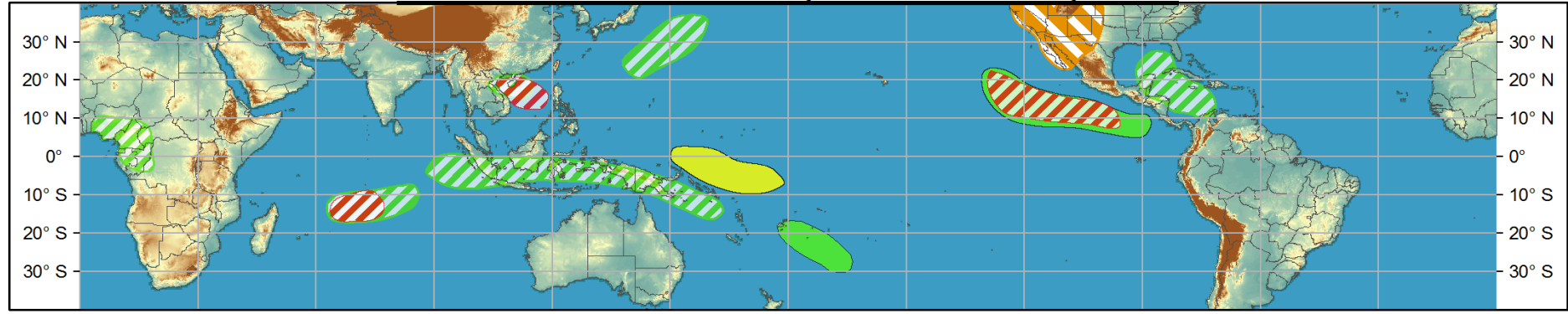


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